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THE JOURNAL OF SCHOOL HEALTH

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Vol. XXVI FEBRUARY, 1956 No. 2

WHY CERTIFY SCHOOLS FOR TUBERCULOSIS CONTROL

J. ARTHUR MYERS*

University of Minnesota, Minneapolis, Minnesota

When the Committee on Tuberculosis of the American School Health Association was appointed in 1934 by Dr. Charles Keene, much was being said and written about values of the tuberculin test and x-ray film inspection of the chest in the detection of tuberculosis. Committee members believed it was important to determine the incidence of tuberculous infection in the childhood population of this nation. State tuberculosis and health associations, state boards of health, and other groups were contacted for information on results of tuberculin testing in the various states. The response was good, but the amount of tuberculin testing that had been done varied greatly from state to state. Nevertheless, a map of the nation was produced and published showing incidence of tuberculin reactors from available records. This map appeared in the Bulletin of the National Tuberculosis Association, January, 1937. In some states large groups of children had been tested regardless of present health, history of contact, etc. In others, only children with definite history of contact were included. Again, in some states only grade school, while in others only high school children had been tested. In some places records had been kept so results of testing adults could not be separated from those of children.

The Committee recognized that the best criterion of the tuberculosis problem in any community is the incidence of tuberculin reactors rather than morbidity and mortality rates. It was recommended that all persons who reacted to tuberculin have x-ray film inspection of their chests periodically. Difficulty was immediately encountered because of the cost of x-ray films. One state secretary wrote: "We are still hoping that your group may be able to get something done about reducing the cost of x-ray films."

To overcome this difficulty the Committee recommended that x-ray inspection of the chests of grade school tuberculin reactors be omitted since Chadwick, Massachusetts, had already shown that among such children only one in 3,300 presented evidence of rein-

*Chairman, Committee on Tuberculosis, American School Health Association. Presented before the Twenty-ninth Annual Meeting, American School Health Association, Kansas City, Missouri, November 14, 1955.

fection type of pulmonary tuberculosis, whereas, among high school children such disease was found in one of 690. Harrington and co-workers in Minnesota had presented similar findings.

Already Powers X-ray Service, New York, had produced paper film in rolls and had devised a camera capable of making 1,000 exposures per day at exceedingly low cost. These films were entirely satisfactory, and their use was recommended by the Committee. Later, de Abreu, Brazil, introduced photofluorograms also produced at small cost.

The Committee advised that tuberculin reactors be reported to health departments as was already required for those with clinical disease. It was suggested that the tuberculin reactor file be kept separate so health officers could seek the sources of children's infections and have the reactor children themselves on lists for periodic examinations as they attained adulthood.

Physicians in general practice throughout the nation were urged to use the tuberculin test routinely with the hope that eventually the majority of citizens of the United States would be tested and the reactors would be adequately examined periodically.

In 1939 it was decided that in order to develop an adequate program, a physician should be selected in each state to represent the Committee. Each state tuberculosis association's secretary was contacted and requested to appoint or to have the organization elect a physician who would work with the state tuberculosis association, the state board of health, the state education association, the medical profession, and all other groups interested in the tuberculosis control movement in schools. State secretaries responded and correspondence was conducted with the chosen physician in each state. Most of these physicians were cooperative, and some did a large volume of work by way of assembling data and promoting tuberculosis control programs in their school systems.

Late in 1939 the Committee was of the opinion that in each state and some of the large cities the work was too great for one physician to represent the Committee and therefore it recommended that there be selected in each state in the same manner as before, at least three physicians to be known as the state subcommittee of the Committee on Tuberculosis of the American School Health Association. These subcommittees were chosen early in 1940, and a great deal of correspondence was conducted with their membership. They were kept informed and requested to attempt to carry out recommendations of the committee in their states. At all times emphasis was placed upon the importance of administer-

ing the tuberculin test to all school children from kindergarten through high school, as well as the entire personnel of school systems. High school and personnel tuberculin reactors were to have x-ray film inspection of the chest, and when shadow-casting lesions were seen, the examination was to be completed with appropriate action with reference to treatment and isolation of those found to have clinical tuberculosis.

Although these subcommittees' members manifested enthusiasm, World War II caused considerable interruption of their work. It became obvious that further organization in establishing more definite objectives was necessary in order to carry out the program more effectively. The work that had already been done revealed more destructiveness from tuberculosis in schools than was previously realized. For example, in one state the case of a bus driver was reported who conveyed 30 children to and from school. He was known to be in poor health, and the cause was found to be contagious pulmonary tuberculosis. Within the next year or so, six of these 30 children were ill or dead from tuberculosis and practically all of the remainder reacted to tuberculin.

W. J. Ryan, Pomona, New York, tested 16,000 school children, of whom 40 per cent reacted, and 116 had manifest clinical tuberculosis. In addition, he tested 986 members of school personnel, of whom six had progressive pulmonary tuberculosis. Jordan made a survey of the teachers in four rural counties and found 14 with clinical tuberculosis, 11 of whom were contagious. All were teaching at the time their disease was found. Harrington, et al, surveyed teachers of the Minneapolis public schools and found six with tubercle bacilli in the sputum and 62 others with shadow-casting lesions. Lindberg reported finding 1.3 per cent of the employees of the schools of Macon County, Illinois, with clinical tuberculosis. Slater published an article entitled, "The Tuberculous Teacher, A Real Danger to the Pupil," in which he cited a considerable number found to have contagious disease while teaching. On the basis of surveys that had already been completed, Lees estimated that 16,000 teachers working in the schools of this country had active tuberculosis and that many such cases also existed in other members of personnel such as cooks, clerks, janitors, and bus drivers. While this was a deplorable situation, it gave impetus to the Committee's program. Greater interest began to be manifested everywhere.

In 1940 a member of the Committee proposed a project consisting of issuing an official certificate of recognition for tubercu-

losis work in progress to schools. This was enthusiastically received and it was proposed that standards be developed by which schools might be certified. This seemed the most logical approach that had come before the Committee as it would arouse local pride, stimulate interest, increase activity, and if properly carried out would actually control tuberculosis in the schools of this country. In order to bring this project before key workers the Committee was permitted to arrange a special program when the National Tuberculosis Association held its annual meeting in San Antonio, Texas, in May, 1941. Five physicians prominent in tuberculosis work presented short papers. This session was attended by 65 persons, many of whom expressed a desire to attend such a meeting annually. A similar meeting was held in May, 1942, when the National Tuberculosis Association met in Philadelphia. Five physicians presented excellent papers heard by 125 persons. Others were turned away because of lack of seating capacity. Many in attendance requested that these papers be published. This was done, and reprints were widely distributed. For some time thereafter, World War II interrupted these programs as well as some other activities of the Committee. Nevertheless, as much work as possible was continued.

The Committee decided to make certification of schools with reference to tuberculosis control work in progress its main activity. It seemed desirable to set up a demonstration in one state where the project could be carefully studied and its values determined. Minnesota was selected for this demonstration because a tuberculosis control program in schools had been in continuous operation for more than 20 years. There the subcommittee and the state tuberculosis and health association devised qualifications which schools would be required to fulfill to merit awarding of certificates.

The qualifications are:

CLASS 'A' CERTIFICATE

1. Ninety-five to 100 per cent of the children must be tested at least every other year with tuberculin of adequate dosage (1.0 milligram of old tuberculin or 0.005 milligrams of purified protein derivative for those not reacting to smaller doses) with the following subsequent procedures:

a. Children of grade school age who react to tuberculin need no other phase of the examination unless symptoms or history are considered of sufficient importance. An x-ray film of the tuberculin reactors is always valuable, and if facilities are available, this procedure is advisable. Otherwise, the x-ray films of children below the age of 12 can be omitted.

However, their family physician and the local health department should be notified in order that the source of their infection may be sought among their adult associates.

b. All tuberculin reactors shall have x-ray film inspection of the chest during the freshman and senior years of high school, and whenever a shadow is found, complete medical examination shall be made to determine the etiology of the lesions causing it.

c. All nonreactors to tuberculin from kindergarten through high school shall be retested at least every two years and preferably every year. Those who become reactors since the last testing shall be dealt with in the same manner as those who reacted to the first test.

2. All members of personnel of a school or system to be certified shall have the tuberculin test administered with the same dosage as for children. This includes teachers, engineers, cooks, bus drivers and all others employed by the schools.

a. All nonreactors shall be retested every two years.

b. All reactors on first or subsequent testing shall have x-ray film inspection of the chest. Whenever a shadow is found, the examination shall be completed to determine whether the lesion casting it is tuberculous, and if so, whether it is of present clinical significance.

c. All reactors, regardless of x-ray findings in the chest, shall be examined with reference to tuberculous lesions in other parts of the body which might be discharging tubercle bacilli.

3. All students and members of personnel who are found to have progressive tuberculosis in any part of the body, that is, in the contagious stage or threatening to become so in the near future, shall be removed from school until adequate treatment has been administered and the danger of contagion is remote.

CLASS 'B' CERTIFICATE

Same as for Class "A," but when only 80 to 95 per cent of the children from kindergarten through high school are tested with tuberculin.

From the outset this project was popular in the schools. The first certificate was awarded the Northfield schools on October 15, 1945. This event was widely publicized throughout the state. Now 2,294 certificates have been awarded and schools have them displayed on their walls, while many other schools are working to qualify.

Whenever possible, as schools qualified attractive ceremonies were held when certificates were presented. These were publicized throughout the state. It was not long until the demand exceeded the ability of the workers to meet the schedule. An effort was then made to have local workers conduct all of the activities possible. Local physicians and hospitals administered tuberculin tests, making x-ray films of the chests of the adult reactors. Public health nurses, teachers and parents were arranging schedules, organizing the schools, preparing those to be tested, keeping records and doing follow-up work. Whenever a grade school child reacted to tuber-

culin it was known that there had been contact with a contagious case of tuberculosis. If such a case was not already known, an intensive search began. The child's adult associates, including parents, grandparents, other relatives, neighbors, etc., were examined. The whole community became interested in tracking down the responsible individuals, and such persons were found with considerable frequency. This was definite proof to the community of the efficacy of the program.

High school students and members of personnel who reacted to tuberculin promptly had chest x-ray film inspections. Whenever shadow-casting lesions were found, the examination was completed to determine etiology. If they proved to be tuberculous, they were promptly observed with reference to activity and contagion. Those found to require treatment and isolation were taken from the school system with the understanding that they would not be permitted to return until their disease was well controlled and they were no longer contagious. A considerable number of teachers and other personnel members were found to have previously unsuspected tuberculosis. Thus, the confidence of the public in the program was firmly established and has since been maintained.

The earlier certification work was done in rural areas and in smaller municipalities with populations of 2,000 to 3,000. It was later extended to the state's largest city where it was found to be just as practical and as effective. For example, as a trial in 24 city schools, 98.4 per cent of the 11,984 children responded, and in 23 of these schools, 100 per cent of the personnel was tested.

Those who have worked longest in the tuberculosis eradication program of this state assert that no previous project has been as effective in stimulating interest and activity in tuberculosis control work as certification of schools.

The Minnesota demonstration thus proved so effective that the subcommittee of the Committee on Tuberculosis of the American School Health Association and the State Tuberculosis and Health Association wrote, "Certification of schools has aroused so much interest and has so increased activity in tuberculosis control in Minnesota that we now recommend it as an excellent project for schools everywhere." Following this recommendation, other states began to adopt the project until, during the present year it was in operation in Illinois, Iowa, Minnesota, North Dakota, South Dakota, and Wyoming.

It has been enthusiastically received in these states and splendid organizations have been effected. In North Dakota and Iowa

special brochures have been printed containing the reasons for the certification of schools project, qualifications for certification, and other important information. These have been widely distributed throughout these states. Mr. James A. Swomley, executive director, North Dakota Tuberculosis and Health Association, built a large school certification exhibit. This is being used at teachers' conventions and similar gatherings and was exhibited at the Mississippi Valley Conference on Tuberculosis in Des Moines in October. It will be exhibited at the annual meeting of the National Tuberculosis Association in New York City next spring. "The success of the program during its test year was the result of the efforts of not only the American School Health Association's North Dakota committee on tuberculosis, but also of many other agencies and individuals, including public health agencies, private physicians, county and city school superintendents, county Christmas Seal committees, and the North Dakota Tuberculosis and Health Association."

Mr. Paul Williamson, executive director, Iowa Tuberculosis and Health Association, reported that over 200 schools had qualified during the year. He said, "The program is being announced statewide this fall, and I can assure you if we are greeted with the same enthusiasm which developed in several counties this spring, the school certification program will really roll."

Mr. E. J. Gross, consultant in program development, Illinois Tuberculosis Association is in charge of the certification of schools project, along with the state subcommittee. He said, "After starting our intensive program for certification of schools in Illinois last spring, we are able to send signed certificates to some 67 schools . . . I feel that the program is taking hold very nicely, and I look for much progress in the future."

In some of the states, panel discussions on certification of schools were presented before the annual State Tuberculosis and Health Association. Mr. Marvin Whealy, executive secretary of the South Dakota Tuberculosis and Health Association, together with the chairman of the South Dakota subcommittee, arranged for such a panel. Dr. R. G. Mayer published an article in the September issue of the *South Dakota Journal of Medicine and Pharmacy* which reached the physicians of that state. A pamphlet is being planned on school certification in South Dakota similar to those already in use in North Dakota and Iowa.

The programs that were earlier arranged and presented by the Committee on Tuberculosis of the American School Health

Association and presented at the time of the annual meetings of the National Tuberculosis Association were so well received that they were revived at the time of the Golden Anniversary meeting of the National Tuberculosis Association in Atlantic City in May, 1954. Approximately 400 persons from throughout this country and abroad attended this meeting. The papers by Dr. David T. Smith and Dr. L. S. Jordan were published in the September 1954 issue of the *Journal of School Health,* along with some of the discussions.

A program arranged by the Committee on Tuberculosis was presented on May 22, 1955, in Milwaukee while the National Tuberculosis Association was holding its annual convention in that city. Three hundred persons filled the meeting room to capacity and we were told that 100 were turned away. The four papers presented by prominent tuberculosis workers from four different states were so enthusiastically received that the audience requested they be published for wide distribution. The paper entitled, "The Achilles Heel of Tuberculosis Control," by Dr. James J. Waring, Denver, Colorado, appeared in the September, 1955, issue of the *Journal of School Health,* and that by Mr. James A. Swomley, Bismarck, North Dakota, entitled, "The Tuberculosis Association and School Certification," appeared in the October issue. A similar program has been arranged to be given at the time of the annual meeting of the National Tuberculosis Association in New York City next spring.

Our Committee and all concerned are deeply indebted to Dr. Floyd Feldmann, medical director, National Tuberculosis Association, and Mr. Archibald W. Dalton, annual meeting coordinator, who have made arrangements for time, place and every other detail necessary for our meetings. They have been announced in the preliminary and final programs of the National Tuberculosis Association.

From the outset, the Committee has worked closely with state and local tuberculosis and health associations. In fact, when it was decided to appoint state subcommittees, each state secretary was contacted and asked to recommend physicians for these subcommittees. Those who were recommended were appointed. This was done because it was felt that members of such subcommittees should be in full accord with the operations of their tuberculosis and health associations. Moreover, it was the strong desire of this committee to lend its support in every way to the local, state and National Tuberculosis Associations in their eradication program.

In fact, among the 12 members of the present Committee on Tuberculosis of the American School Health Association, five are past presidents, two past vice presidents, and the remainder members of the National Tuberculosis Association.

In the past, certificates have been signed by the president and executive secretary of the American School Health Association and the chairmen of the respective state subcommittees. At the May meeting in Atlantic City, it was the opinion of those consulted that in the future, certificates should also be signed by executive secretaries of state or municipal tuberculosis and health associations. Therefore all certificates have since been signed by four persons before presentation to schools.

WHY CERTIFY SCHOOLS?

Certification of schools is simply a technique for *creating interest and activity* leading to eradication of tuberculosis. In 1917 the veterinary profession and its allies learned that official accreditation of counties on the basis of accomplishments in tuberculosis control among animals created unusual interest. It gave the citizenry of the county a definite goal so the work went forth in a methodical and well organized manner. Accreditation of counties provided tremendous impetus and greatly hastened the movement toward the eradication goal. In 1940 every county and state in the nation had been accredited. In 1955 only 0.12 per cent of the cattle tested in this country were infected with tubercle bacilli and in large areas the tubercle bacillus had been eradicated from the cattle herds.

Interest in certification has extended far beyond the schools and the states where this program is in operation. Numerous letters of inquiry continue to reach the Committee as well as those in charge of local programs. On September 10, Mr. James A. Swomley, in charge of the North Dakota project, wrote, "In the past few months we have received letters from as far away as Hawaii and New England, asking for copies of our booklet on certification." Dr. Walter Gray, chairman of our St. Louis subcommittee, and chairman of the Committee on Tuberculosis of the St. Louis Academy of General Practice, stated that he had received requests for information and reprints concerning the St. Louis program from all parts of the world. He had also received many requests from various medical organizations throughout this country and Hawaii for the motion picture he had produced in color on the tuberculin test.

Certification of schools presents *educational opportunities* to be found in no other place or by any other method. The educational campaign of two or three months preliminary to actual testing results in acquirement of much information about tuberculosis by the citizenry. This is intensified as the day of testing approaches, which becomes a red letter day in the community. Parents are eagerly watching for the results of the tests of their children. It is a well established fact in pedagogy that the best time to convey information on any subject is when people are personally interested.

In 1905, E. L. Trudeau said, "Education should begin by teaching in the public schools the main facts relating to the transmission of tuberculosis, insisting in such teaching on the value of hygienic measures of prevention." In 1954 there were in the United States more than 16 million pre-school children. From five to 13 years, inclusive, there were 27,118,000 children, and from 15 to 19 years, 12,854,000. There were more than 1,000,000 professional and approximately 200,000 nonprofessional employees in the schools of this country. The best kind of education comes through actual participation of children and personnel alike. Opportunities are unlimited among the children and the personnel members of our schools. This group, which constitutes nearly one-third of our total population can promptly be converted into a mighty army against tuberculosis as its members learn about the disease by participating in school programs.

Certification of schools provides a *present and long-continuing program for state and local tuberculosis and health associations.* The recent precipitous decline in mortality from tuberculosis and the continuous decrease in number of new clinical cases to the extent of closure of some sanatoriums and operation of many others at 50 per cent or less of their capacities has resulted in near frustration of many of our organizations. The propaganda pertaining to mortality and morbidity upon which they have so long depended is no longer tenable. Being unable to build adequate propaganda around funeral parlors and hospital beds, future needs for tuberculosis organizations are seriously questioned. Already some have extended their activities to non-tuberculous diseases, while actual disbandment has been suggested for others. The 3,000 tuberculosis and health associations affiliated with the National Tuberculosis Association are comprised of the most powerful group of people ever banded together to combat a single disease. To prevent disintegration of this momentous organization,

prompt adjustment to the changed situation must be made. To stop before traveling one-half the road to eradication would justify severe criticism of future generations.

Major emphasis must now be placed upon the cause of tuberculosis — the tubercle bacillus. First consideration must be given the 3,300 per 100,000 persons now harboring tubercle bacilli in this country rather than just the 10 per 100,000 who died or the 51 per 100,000 new cases reported in 1954. The most potent segment of the population to be appraised of this changed emphasis for appropriate prompt and continuing action is in the schools.

Tuberculosis remains the most *serious communicable disease among the children and school personnel* in this country. There is no other major disease which has attacked the bodies of so many with such serious future potentialities as tuberculosis. Even in present tuberculosis low incidence states such as New Hampshire and those of the upper midwest from 2 to 4 per cent of grade school children and 20 to 50 per cent of personnel are harboring tubercle bacilli in at least small areas of disease. Each year some of these individuals develop clinical disease while in school and many others are destined to do so later in life. The certification of school programs alerts all to the present and future dangers.

Certification of schools practically *solves the problem of tuberculosis in schools* and often reaches entire communities which schools serve. Schools which have met the certification qualifications and have perpetuated the work no longer have the problem of the teacher, bus driver, high school student, and others working with contagious disease and disseminating tubercle bacilli among personnel and children. This situation can obtain in every school of this nation.

The lowest tuberculosis mortality, morbidity and infection attack rates in our nation now obtain in areas where good tuberculosis control programs in schools have been in continuous operation for 20 years or more.

The examination required for certification not only ferrets out those who have clinical tuberculosis, but also those who are harboring tubercle bacilli. Thus, one learns where the tubercle bacilli reside and may act accordingly.

The following facts concerning tuberculosis are well established and are included in the certification project:

1. Infection with tubercle bacilli is acquired after birth through contact with persons who have contagious tuberculosis.

2. After tubercle bacilli invade the human body, their presence can be detected within approximately two months by the tuberculin test.

3. Every person who reacts characteristically to this test has at least microscopical areas of disease containing living tubercle bacilli.

4. These germs may remain dormant and cause no illness through the remainder of the individual's life. On the other hand, they may at any time throughout life result in progressive disease.

5. Most progressive disease which becomes contagious evolves during adulthood.

6. Persons who react characteristically to tuberclin should be examined promptly. If progressive disease is not found at that time, they should be re-examined, always including x-ray film inspection of their chests, at least annually for the remainder of their lives.

7. When such annual examinations are made, chronic areas of pulmonary disease can nearly always be found before they cause symptoms or have become contagious, and when they can be successfully treated.

8. It is important to seek the source of the child's infection by examining adult associates. This is often fruitful. However, the major objective of the school certification project is to locate tubercle bacilli in the bodies of children and personnel, practice and recommend methods by which the organism can be prevented from causing serious illness or being disseminated to others.

These facts, conveyed to and impressed upon all persons concerned with schools guarantee the most practical and sure approach to the eradication of tuberculosis.

Make Your Reservations Early for the

ANNUAL MEETING OF THE AMERICAN SCHOOL HEALTH ASSOCIATION

at Atlantic City

NOVEMBER 12-16, 1956

Headquarters — Claridge Hotel

LOOKING TO THE LIVING WITH EDUCATION IN THE COMMUNITY

RALPH H. BOATMAN, Ph.D.

Director—Health Education Department Tuberculosis Institute of Chicago and Cook County, and Health Chairman, Illinois Congress of Parents and Teachers

Abstract

Today, as never before, the need for an intensified and intelligent health education program in the battle against tuberculosis is being felt. We are confronted with complacency because people are aware of the declining tuberculosis mortality rates but they do not know about the number of new cases that are being found; they do not understand the relationship of tuberculosis to socio-economic conditions and other factors which affect the standards of living of communities. They read about the curative power of "wonder drugs;" of tuberculosis patients dancing in the wards. They read feature stories about the closing of prominent private sanatoria and presume that there no longer is need for beds for tuberculosis patients; and they are beginning to read about out-patient clinic services and a reduction of the time spent by patients in sanatoria. The tuberculosis picture is changing and we need to keep the public acquainted with the developments which affect this major public health problem.

Leadership in health education over the past fifty years, not only in the field of tuberculosis education, but in all fields of health education, has been provided by tuberculosis associations. The lifeblood of these agencies comes from the volunteers who have banded together to explore, demonstrate, and focus attention on the need for community education and action to combat not only tuberculosis, but also other public health problems which have affected the health and welfare of the public. Additional strength comes from a recognition by our associations that they alone cannot control and eradicate tuberculosis. They have recognized the need to support and strengthen the programs of official public health agencies, the health programs of public schools, industries, and other voluntary organizations such as community councils.

There is still much pioneering to be done in health education, specifically tuberculosis education, and this pioneer effort can affect the status, not only of tuberculosis but also other community health problems.

Presented at the 6th Annual Tuberculosis Conference, The Hotel Sherman, Friday, March 25, 1955 — A.M.

We need our health education program more distinctly identified with population groups where the tuberculosis problem is more intense, and direct our efforts to the end that we will obtain more cooperation from these groups. Our projects should be people-centered and community centered and the feeling should be projected that this is their problem and their responsibility. We should refrain from conveying the concept that they are doing us a favor by helping. To be sure, we are grateful for their help, but the problem belongs to the people and only through their understanding and willingness to assume responsibility will we ever achieve success. Furthermore, it is only in a democratic society that we find voluntary agencies, and we must continue to foster this heritage through our work with community groups.

Tuberculosis is not an isolated disease but is related to the education, economic and social conditions of a community, and to the political, philosophical, religious, and many other factors affecting community life. Therefore, to be successful, in tuberculosis control, we must make sure that each individual in the community is being reached. We cannot become complacent in methods, but must constantly evaluate our efforts to determine if we are reaching and securing cooperation from all groups. We must move beyond the technique of showering communities with literature and bombarding them with publicity — all of which are important — and must secure face-to-face situations which give the individual a real experience. We must constantly recognize that tuberculosis is only one of many health problems confronting the individual and must attempt to help him see this problem in relationship to the health regime that he employs to acquire for himself, his family and community the optimum degree of health which they are capable of achieving.

Tuberculosis control is not the prerogative of any one group or profession and each must assume his share of the responsibility for educating the general public. The private physician, the nurse, the health officer, the health educator, the teacher, the technician, and the clerk all have a responsible role to play, and they must identify that role and establish objectives toward which they will work. Countless hours are devoted to this health problem by our boards of directors. Their backgrounds of experience vary, and they too need to be assisted in acquiring an understanding of the problem and the responsibility that they have in this fight against tuberulosis.

Our plan of attack should not be divorced from the activities of other groups. We need to support and cooperate completely

with the official health agencies; we need to assist school officials in attaining the best possible school health program; and, we need to support the programs of other groups concerned with tuberculosis and comunity health.

How can we help such groups? We have professional staffs trained in educational and public health techniques which are able to tender valuable consultant service to these groups. We are able to help by recruiting trainees and underwriting the necessary training of needed personnel for these agencies. We can plan together with them for needed in-service education programs. We can even underwrite positions on their staffs to demonstrate the need for the skills and knowledge of given professional personnel.

Because of the freedom enjoyed by our associations as compared with legal restrictions imposed upon official health agencies, we are in a position to underwrite all or a part of the cost of demonstration programs; we are in a position to undertake needed research; and at all times we are in a position to utilize the strength inherent in our volunteers to attain community understanding and acceptance of the programs and needs of these organizations.

Our responsibility is in the field of tuberculosis education and our strength and success rests with our awareness of the many other factors which affect tuberculosis; the knowledge that many groups must cooperate in this fight against tuberculosis; and in our continued efforts, not to compete with official agencies which have been designated specific responsibilities in this battle, but to continue to be the pioneering agency that is coping with problems for which we need to gain public acceptance and discover answers.

* * * * *

TUBERCULOSIS CONTROL IN SCHOOLS

The South Dakota Tuberculosis and Health Association has published a six page brochure for the American School Health Association on the School Certification Program for Tuberculosis Control.

It is a guide for physicians, boards of education, public health nurses, school administrators and Christmas Seal chairmen.

A copy of this may be obtained from the South Dakota Tuberculosis and Health Association, 114½ North Egan Avenue, Madison, South Dakota.

A. O. DeWEESE, M.D.,
Sec'y-Treas., A.S.H.A.

MULTIPHASIC SCREENING IN THE SCHOOL HEALTH SERVICE PROGRAM

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Certain specific phases of screening in the school have been discussed by Dr. Meredith,[1] Miss Craig[2] and Mrs. Downs.[3] This discussion will suggest other procedures that have been or might be considered as a part of the school health program. It will also raise the question of the desirability of these as part of the school health service program as well as the conditions which might improve their acceptability.

At the National Conference on Chronic Disease, in 1951, it was agreed that "Screening is the presumptive identification of unrecognized disease or defect by the application of the tests, examinations or other procedures which can be applied rapidly." With the development of the concept that screening is not synonymous with detection nor a form of diagnosis but only one of the steps toward diagnosis, we step into an area where by mass methods of screening procedures is used to detect chronic disease. In fact, this same conference submitted as a definition "Multiple Screening is the use of two or more simple laboratory tests, examinations of procedures applied rapidly and on a mass basis to determine presumptive evidence, all unrecognized or incipient disease or defect."

It is important to know that these procedures are intended to determine presumptive evidence of disease rather than a diagnosis on which a physician would feel justified in basing treatment. In the operation of multiphasic screening programs, the basic principles involved are *1. the screening tests should be simple to administer. 2. they should be easy to interpret. 3. they should be relatively inexpensive. 4. they should require little time to perform* and *5. each test or procedure should meet the criteria suggested by the National Conference on Chronic Illness, which includes reliability, validity, yield, cost, and acceptance.* For school purposes, we must add to these certain other principles: *1.* Is the procedure, as administered, the practice of medicine by an educational institution? *2.* Can the procedures be justified as a sound

1 Measuring the Growth Characteristics of School Children—Howard V. Meredith, Journal School Health, Vol. XXV, No. 10.
2 Teacher Observations in the Classroom—Marjorie Craig, Journal School Health, Vol. XXVI. No. 1.
3 The Familiar Sounds Test and Other Techniques for Screening, Hearing—Marion P. Downs, unpublished.
4 Presented at the meeting of the American School Health Association, November 16, 1955, Kansas City, Missouri.

educational policy? *3.* Does the procedure teach children the proper relationship between themselves and their personal physician? and, *4.* Has an effort been made to correlate the procedure with the curriculum in education for healthful living?

The screening procedures which appear to be accepted, or at least have a long tradition, observation and use include the three that have been already discussed. Though we may debate the techniques to be used in the screening procedures for hearing and vision and the evaluation of growth and development, there seems little question about the desirability of the measurement of these physical factors. They are definitely related to education and their usefulness can, to some extent, be measured. Continuous daily observation by the classroom teacher supplemented by teacher-nurse conferences, though somewhat different from these others, is also a screening procedure that is generally accepted and adopted for use in the school.

A number of other tests, some quite generally utilized, others used only here and there, raise some doubt as to their desirability in the school program. Many of these are ideal when used as a diagnostic procedure in conjuncton with a referral examination during his portion of a health appraisal performed in his office. There may be question about their use alone in mass school screening. Nevertheless, these procedures should be given more careful study before being generally accepted or rejected, for use in the school.

Tuberculin testing is possibly the most common of these. It is performed by the intra-cutaneous injection of old tuberculin in measured quantities or the application of inert patches impregnated with tuberculin. In pre-school and primary children, the greatest value of this procedure is the detection of infectious tuberculosis among the adults associated with the child. In older children, it may indicate acute tuberculosis. X-ray of positive reactors is an accepted procedure, though mass X-ray of school age children is not sufficiently effective in detecting cases below the senior high school level to justify the expenditure.

In some sections of the country, X-ray screening and the use of skin tests for the detection of histoplasmosis can be justified where this condition is not endemic.

Tests for the determination of nutritional status are becoming common. Weighing and measuring and plotting of the data on Meredith or Wetzel charts are often used as a supplement to clinical observation. Determination of hemoglobin, either with

or without a count of blood cells is considered an evaluation of nutritional status though sometimes it could be considered an index of infestation with hookworm. A number of tests can now be performed to determine vitamin levels which are more interesting than useful.

The public interest in diabetes has caused urinalysis for the detection of glycosuria and the chemical determination of blood sugar to become popular in adult screening programs. These tests are not justified in the screening of children. Juvenile diabetes develops so rapidly that the probability of its being picked up by a procedure performed annually, or less often, is very low. As a rule, the behavior of the child will raise the suspicion of an alert teacher who will refer him for medical supervision before he is likely to be detected by a periodic screening procedure.

Serologic tests for syphilis and bacteriologic examinations for gonorrhea are quite standard practices in some population groups and in some regions of the country. In others, the incidence of syphilis is lower than the factor of error in the serologic tests which produces complicating situations that make the test quite undesirable as a routine in schools.

The increased prevalence of heart disease has led many to bring into the screening program of the school such diagnostic procedures as the X-ray, the electrocardiograph, the ballisto cardiograph, the syphgmomanometer and the sedimentation tests. By the time a child with congenital heart disease is in school a diagnosis has usually been made. The heart disease resulting from rheumatic fever will probably have been recognized earlier because rheumatic fever is diagnosable before heart disease results. The value of these tests as a routine procedure should certainly be studied. At the present time it would seem that they are of little or no value as screening tests even though necessary in diagnostic procedures.

Infectious skin conditions can often be detected by direct observaton. This particularly applies to conditions such as scabies, impetigo, and the fungus infections of the feet. Some specific procedure such as the use of a Wood's light is necessary for detecting ringworm of the scalp. Where these conditions are common, control may depend on screening of the entire school population.

There are a number of other things that can be looked for in screening but they are largely based on observation and history. With the exception of the teacher's observation and the observations made by the nurse during a teacher-nurse conference, there

is little opportunity to review the history of the child's recent behavior and its relation to his health. It would seem that we could justifiably make a more careful study of such techniques and administrative procedures as a systematic review of absenteeism. The majority of absenteeism at the present time is based upon health problems, either physical or mental, in the child or his immediate family. Much might be learned about the health of the child and the characteristics of his health education experience at home by a study of the causes of absenteeism.

The use of a health inventory questionnaire, simliar to, or modified from the Cornell Index, or others of a like nature, might allow the development of profiles which would select children that need more careful observation by both teacher and physician. For the lower grades, these could be completed by the parent, while high school pupils would be able to give their answers to a questionnaire designed for their use. This could form a basis for counselling on many of the behavior problems encountered in children of this age.

This has been a very superficial review of a number of areas in which screening is possible merely to call attention to the potentialities in the field of screening. With the popularity of multiphasic screening at the adult level, we are likely to encounter pressures forcing us to increase the battery of tests used in the high school. This may be acceptable if it can be shown to be both medically and educationally sound and that the introduction of these tests does not interfere with the child's understanding of the relationship he should have with his own personal physician.

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AN OMISSION AND AN ERROR

The December 1955 issue of the Journal of School Health carried an article entitled HEARING CONSERVATION PROGRAMS; THEIR ACCOMPLISHMENTS AND DEFICIENCIES" by Lederer, Quinn, and Neville. The original and longer paper was presented at the Speech and Hearing Conference in Kansas City in February, 1955. A shortened version was submitted for publication in the Journal. The longer paper carried a bibliography which was omitted in the shorter version. Attention is directed to the last item in the bibliography which refers to the *Manual on Hearing Conservation* now being compiled, AND which IS THE ORIGINAL SOURCE, according to the senior author.

BIBLIOGRAPHY AS IT APPEARED IN THE LONGER PAPER

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(*Continued on Page* 64)

RESEARCH IN ACTION

(A Study in Nutrition Education)

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This research study in Nutrition Education is reported under the title, "Research in Action." I am pleased to state that although the scientific phase of the research study has ended the *action* continues.

We, in the Kansas City Public School System, have been interested in the food habits of boys and girls in the public schools for many years but have had insufficient data to know if their food habits met the standard of Recommended Daily Dietary Allowances. As a result of our recent study, we now know much more about food habits of boys and girls in grades six, seven and eight.

The Beginning: In the beginning of the research study it was recognized that the success of any phase of an intensive study depended upon adequate ground-work. Individuals who are most closely associated with any study need to participate actively in making plans for it.

Meetings were held with directors of elementary education, secondary education, homemaking, family life education, health service, P.T.A. groups, research and testing, curriculum, school lunch, school superintendents and many other departments. The purpose of the study was explained and suggestions for organization and procedures were discussed. A general plan was formulated.

Purpose of Study: The purpose of the research study in nutrition education can be stated quite simply. *The purpose is to develop programs of nutrition education in sixth and seventh grades which will influence food habits of boys and girls.*

Responsibility: Recommendations for the study were made by the director of the Health and Physical Education Department and the responsibility of the organization and procedings was placed in that department. Heads of the Departments of Research, Testing and Curriculum served as co-sponsors.

Dr. Eugenia Whitehead, Chairman of the Home Economics Department, University of Iowa, has been a co-director of the study from its inception to its present state of completion as a research study. Studies made by Dr. Whitehead in Ascension Par-

Presented before the "Second General Session," on Thursday, November 17, 1955, at 9:45 A. M.

ish, Louisiana, were used as a foundation for the three-year research study in Kansas City. Dr. Whitehead and Dr. O'Keefe, have served as co-directors. This study was supported in part by The Wheat Flour Institute and The National Dairy Council.

Selection of Schools and Grades: Five schools were selected to participate in the research study. Three were designated as research schools and two as control schools. There was a comparable number of grades (rooms) participating in the control schools as one school had two sixth and two seventh grades. Four hundred and forty-five boys and girls were enrolled in these twelve rooms.

Research and control schools were selected by representatives of the general administration staff. Consent for the study to be made in each school building was secured from the elementary school principal. The basis of selection included, (1) income of the head of the family, (2) recognized similarity of socio-economic level of families, (3) results of the school testing program, (4) anticipated stability in enrollment, and (5) willingness of the classroom teachers and principals to use nutrition education problems as a center of interest in teaching.

A comparison of the socio-economic status of the school districts was based upon selected data from the 1950 census tracts for Kansas City, Missouri, as reported by the Bureau of Census.

Sixth and seventh grades were selected for the research study as it was believed they would provide situations effective in preparing students for the varied experiences which await boys and girls as members of the eighth grade. In a three-year study the seventh graders would participate in an enriched curriculum for one year, sixth graders would participate two years. The third year would provide an opportunity to evaluate the effectiveness of the enriched curriculum.

Results of the Chicago Reading Test showed the median reading grade equivalent to be 6.6 for the sixth grade research group and 7.0 for the control group.

The total reading comprehension medians expressed as grade equivalents was 8.2 for the seventh grade research group and 8.4 for the control group.

Results of the Otis Quick Scoring Test of Mental Ability showed the Median Beta I. Q. to be 105 for the sixth grade research group and 104 for the control group. The Median Beta I. Q. score was 105 for the seventh grade research group and 109 for the control group.

Groups in the research and control schools were considered comparable.

Teachers: The teachers were members of the school staff in buildings which were chosen for the research study. They were contacted; the purpose of the study was explained and if they were interested and willing to participate they became a part of the study plan.

Parent Conferences: It was the belief of the co-directors and other administrators that parents needed to be active participants during the entire three years if boys and girls were to receive maximum benefits from their experiences as participants in the study.

It was also recognized that the family pattern of eating exerted a marked influence over the habits and eating patterns of children. Parent education could function most adequately if it were to parallel learning experiences of children.

Meetings were held with parents of children in the research schools before any definite plans were formulated. The important part they were to play in this program in nutrition education was understood and their willingness to cooperate was expressed.

Considerable time was devoted to initial planning and organization but all experienced educators know that a *pleasant and effective relationship depends upon understanding and willing cooperation.*

Appraising Food Habits: [1]The appraisal of food habits which was to be used included ten protective food groups. These food groups included all required nutrients if taken in the proper number. The food groups were milk, eggs, non-citrus fruits, citrus fruits, lean meat, whole grain and enriched products, butter and fortified margarine, Irish and sweet potatoes, green leafy vegetables, and vegetables other than green leafy.

The Approach—What Do Children in Kansas City eat? No One Knew the Answer: This study was concerned primarily with what boys and girls *do* as well as what they *know* in regard to nutrition. The food appraisal indicated that both control and research groups fell below Recommended Daily Dietary Allowances in *milk, eggs, citrus fruit, butter and fortified margarine, Irish and sweet potatoes and green leafy vegetables.* The lowest intake in food groups was in green leafy vegetables, butter and fortified margarine, milk and potatoes. The highest intake was in lean

1 Whitehead, F. E.—Appraising Food Habits—An Evaluation Device for Classroom Teachers, Louisiana University, Baton Rouge—1948.

meats. ("Kansas City is the home of delectable, sizzling steaks and mellow, juicy beef roasts"). One group consumed 46% more meat than was recommended as a standard daily dietary allowance.

The food intake of children in research and control schools fell in similar patterns at the beginning of the study.

The teachers and children in the control schools did not know the results of the initial tests or subsequent tests. Their purpose was to proceed with health education as usual.

[2]An *Information Test* was given to determine what children knew about nutrition. Although nutrition information does not of itself assure good food habits, it is expected that this age child will rarely perform any better than his or her information permits. The initial information tests indicated strong similarities between research and control groups.

Following the tests it was decided that improvement was needed in the food habits of boys and girls in Kansas City and the following plan went into action for a three-year period.

Nutrition Education in the Research Schools: [3]In general, nutrition education in the research schools resulted from the teacher's creative abilities and teaching competencies once she became aware of the nutrition education needs of the boys and girls. There was no course or curriculum guide to follow at that time and at no time were teachers told what or how to teach. Instead they were continuously reassurred of professional help when they needed it.

[4]All six teachers developed programs based upon nutrition education needs as revealed by the appraisal of food habits. Actually the "needs" were similar, however, the approaches used by the teachers varied greatly. Even the three seventh grade teachers who developed enriched curriculums with their classes for two consecutive years used new approaches to the same nutrition education problems. For example, one of the nutrition education problems was that of needing an increased intake of citrus fruits and green leafy vegetables. Teachers approached this through study trips to city markets, followed by vegetable tasting parties the first year. The next year this problem was approached through animal feeding demonstration with guinea pigs.

One teacher was surprised to learn that less than one-fourth of the boys and girls in this seventh grade room had been to a

2 Tinsley, W. V.—"Nutrition Information Test B and C" of Public Services, General Mills, Inc., 1947.

3 Third Report—"Research in Action."

4 "Research in Action"—Third Report.

public eating place where they selected foods and became aware of their monetary value. Information was not the answer but actual experiences in securing money, providing transportation, having acceptable manners, being well groomed and knowing reasons for choosing certain foods. Each phase of this problem caused the boys and girls considerable concern. Each of these phases became a learning experience. Trips to different eating places contributed to their ability to eat in school cafeterias and other places *where foods were selected.* Careful plans were made previous to these trips.

The enriched curriculum in all research schools embraced most of the areas of learning in the curriculum. Nutrition education became inter-related with subject matter areas and community activities. Experiences were as limitless as the initiative and interest of the teachers.

Teacher Work Conferences: Special meetings were held throughout the year to discuss current problems; to exchange ideas with teachers, principals, parents, consultants and other specialists; to observe displays, charts and other evidences of children's activities. The work-conferences followed no set pattern; each was designed to meet current interest.

Consultants: Nationally recognized consultants in the field of Health and Nutrition gave assistance to classroom teachers at different times throughout the three year study. Dr. Floride Moore, Associate Professor of Home Economics Education, at the University of Georgia, served as senior consultant for all three years.

The services of Miss Helen McManus, Nutritionist, were secured. She worked with the classroom teachers and children whenever needed.

Outcomes: The third report of this research study in nutrition education will be published in November. Statistical data which are not available at this time will be included in the third report.

Children: Many results of this type of research cannot be measured at this time as 6th, 7th, and 8th grade children are at an age where there is strong parental influence and it is possible that some of the experiences in this nutrition education study will not become evident until these children have homes of their own or are more independent of family influences.

At the close of the second year of the study and before entering high school, the boys and girls who had participated in an enriched curriculum had met or surpassed the recommended daily

dietary allowance in six food groups. The control group, which did not participate in the enriched curriculum, met or surpassed the standard in two groups only.

At the end of the three year study where boys and girls had participated in the enriched curriculum two years and had been in high school the following year, the research groups *had met or surpassed* the recommended allowance in three food groups and had made gains in seven food groups, the greatest of these gains being in butter and fortified margarine. The control groups met or surpassed the recommended allowances in one food group and made gains in three food groups during the three year study. The greatest of these gains was also in butter and fortified margarine.

[5]It does seem important nutritionally to recognize the fact that the research groups had the ability to hold their own and make progress in their food habits in an eighth grade situation with better results than did the control groups.

It was learned that green leafy vegetables are seldom placed on tables in Kansas City homes if food habits of children reflect the family pattern of eating. At the beginning of the study only 53% of the research group met the recommended dietary allowance in green leafy vegetables and at the end of the second year there was only a 19% gain. At the beginning of the study, 35% of the control group met the recommended standard and at the end of the second year there was a 13% gain. Regardless of the tasting parties, trips to vegetable markets, stores and preparation of vegetables for the table, the consumption of green leafy vegetables remains a challenge.

Results of the Ohio Education and Hygiene Test given in January of 1955, showed the groups in the research schools to have a broader and more scientific knowledge than those in the control schools.

The Nutrition Information test given in the fall of 1952 showed an equality in medians between research and control groups, the median being 43.4 for the research group and 43.2 for the control group. Three years later the medians were higher and there was a marked difference beteween the median of the research and control groups. In May of 1955 the median was 61 for the research groups and 53 for the control groups.

Schools: There were times when teachers expressed concern about the amount of time they were spending on nutrition educa-

5 "Research in Action"—Third Report.

tion. Scores on Reading, Language and Social Studies allayed all fears. The scores in all subject matter tests were above the city average. It is believed that time spent on nutrition problems which were real to boys and girls enhanced the meaning of other subjects.

Teachers expressed pleasure and satisfaction in the change that had been made in the curriculum, in teaching procedures and experimental attitudes.

City-wide attention was given to nutrition education. Workshops and city-wide parent and teacher meetings were held by the Director of Elementary Education and the Director of Health and Physical Education.

Two film strips were prepared. They were based on experiences of boys and girls in research schools. The film for teachers was entitled, "Better Nutrition Teaching," and the one for children was entitled "Eating Out."

Classroom teachers and specialists assisted in preparing a "Nutrition Guide" which will be used by all teachers in 6th, 7th and 8th grades in the Public School System.

Plans have been made for teachers in all the public schools and for parents to profit by the enriched curriculum which emphasized nutrition education.

The purpose of this study was to develop programs of nutrition education in sixth and seventh grades which would influence the food habits of boys and girls. Test results indicate that food habits of boys and girls in research groups have been favorably influenced through an improved curriculum. This study exemplifies *Research in Action.*

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AN OMISSION AND AN ERROR

(*Continued from Page* 57)

Hardy, Martha Crumpton, An Exploratory study of the results of the Hearing and Vision Conservation Demonstration in the Chicago Public Schools, Elizabeth McCormick Memorial Fund. November, 1953.

Thompson, Mary L. Results of a Two-Year Demonstration Hearing Program in the Chicago Public Schools, Presented at the American Academy of Ophthalmology and Otolaryngology, New York, September 19, 1954.

Manual on Hearing Conservation, being compiled by the Advisory Committee on Hearing Conservation and Rehabilitation of the Illinois Commission for Handicapped Children.

In the first paragraph of the paper, as published in the Journal of School Health, the figure 8 in paragraph one, line 5, should be replaced by the figure 3. The sentence should read, "Of the total number, 3% were discovered to have a hearing loss sufficient to be referred to an otologic clinic."

REPORT OF THE EXECUTIVE SECRETARY FOR YEAR 1954-55

A. O. DEWEESE, M.D.

Kent State University, Kent, Ohio[1]

It would be most embarrassing to have to report that a national health organization was not itself in a healthy condition. I am grateful that your activity, individually and collectively, during the past year has saved me that embarrassment, and that I can assure you in this your twenty-ninth Annual Convention assembled, that your Association is in a very healthy condition.

The best single index that we still have of the health of the school child is his height and weight in relation to normal growth and development. In applying the same yardstick to your Association you have increased in height and stature during the past year and exhibited all the clinical evidences of normal growth and development.

You added 743 new members during the year. Through death, marriage, and other withdrawals, you lost 582 members. This gives an over-all increase in your membership of 161. Your total membership as of September 1st, is 4151. You are still growing and on your way to the 5000 mark.

You contributed to the Association, almost wholly through your membership dues $12,284.19. $1,440 of this was used to purchase government bonds as a financial protection of your Association. Of the remaining $10,844.19, $7,133.67 or nearly 66% was spent in getting into your hands each month your official publication, the Journal of School Health, and its reprints. Your organization is quite unique in that almost two-thirds of your professional contribution is delivered back to you individually. The remaining 34+% was used for the more essential clerical and office expense necessary to provide a skeletal professional and business organization for your Association.

A balance of $5,893.18 was carried over from last year.

As of September 1, 1955, you had a balance in your treasury of $5,763.86. This balance will make it possible next year to increase the size and improve the content of your Journal and improve the efficiency of your office service and collective professional activities.

1 Presented at the First General Session of the 29th Annual Meeting of the American School Health Association in Kansas City, Mo., November 14, 1955.

For any professional national organization to survive, grow and develop two factors must be present:

1) There must be a social and professional need for such an organization.
2) The members of the organization must be able to fulfill that need.

The fact that your Organization has survived for 29 years with steady and continuous growth and development has proven beyond a doubt, that School Health in America needs an organization such as yours, and that you have been able to fulfill that need.

The future health, physical fitness and happiness of the school children of America depend upon the co-operative resources and effort of:

1) The physician and dentist.
2) The school nurse.
3) The health educator.
4) The home and community.

You have in your membership of over 4,000 the three professional groups of this combination. You are about evenly divided on the basis of one-third each and all of you are representative of the home and community. Twenty-eight percent of you are physicians or dentists; forty-one percent are school nurses; and thirty-one percent health educators. You cannot beat such a combination. With a reasonable amount of individual and collective and co-operative service through your national organization, the American School Health Association, you can bring to the boys and girls of America that blessing of which we have long dreamed, and in the not too distant future make the objectives expressed in the proposed National Conference on Physical Fitness a reality.

You truly have a great opportunity. I pray that you will make the best of it.

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JOINT SESSION OF AMERICAN SCHOOL HEALTH AND THE NATIONAL TUBERCULOSIS ASSOCIATIONS

J. A. Myers, M.D., Chairman of our Committee on Tuberculosis arranges each year for a session of our Association in cooperation with the annual meeting of the National Tuberculosis Association. These sessions have been well attended and have been most successful and helpful in co-ordinating the School Program for Tuberculosis Control with the over all National Tuberculosis Program.

The annual meeting this year will be held in New York City, May 21 from 8 to 10:30 P.M., Keystone Room, Hotel Statler.

We urge all members of our Association who possibly can to attend this session. We expect a goodly number of our members in the New York City area to attend.

PROGRESS IN SCHOOL DENTAL HEALTH EDUCATION

PERRY SANDELL

Director of Bureau of Dental Health Education, American Dental Association, Chicago, Ill.

Since there is substantial evidence[1,2] that dental decay in school children and young adults is on the increase, some people might conclude that relatively little is being done by schools or other agencies to prevent or control the disease. I do not believe, however, that this is the case.

A study[3] was made by the Bureau of Economic Research and Statistics of the American Dental Association during the current year to determine the number of cities having school dental programs and the various characteristics of these programs. Questionaires were sent to superintendents of public schools in 3,529 cities of more than 2,500 population.

For purposes of the study, a school dental program was defined as any program conducted through the school utilizing in any way the services of dentists, dental hygienists or dental assistants. Completed questionnaires were received from 2,228 cities or 63% of the original mailing list. Among cities responding, 1,343 or 60.3 per cent reported the operation of school dental programs.

As you would expect to find, the larger the city the more likely it is to have a dental program. This, of course, is true not only of dental health programs but of all programs requiring specialized personnel. It is interesting to note, however, that of the cities of 2,500-5,000 population responding to the questionnaire 47.4 per cent reported dental programs.

Dental personnel and how provided: Ninety-five schools (7.1%) had the services of a full-time dentist, but of all the full-time dentists about two-thirds (68%) were actually employed and their salaries paid by the health department. Only 20.9 per cent were employed and paid by the school system. About one in three cities over 100,000 had full-time dentists working in the schools.

Full-time dental hygienists were employed in 297 (22.1%) of the school systems reporting programs. Quite opposite to the situation of the dentists, more than two-thirds (67.6%) of the hygienists were employed and paid by the school. Thirty-two per cent were employed by the health department.

In 83% of the cities dentists worked part-time in the schools. Of all the dentists working part-time, 43% donated their services. The others were paid either by the school, the health department or under other arrangements.

Presented before the American School Health Association, Thursday, November 17, 1955.

Only a few (11.7%) of the schools reported dental hygienists employed on a part-time basis. Of the part-time hygienists about an equal number were paid by the school, the health department and through other arrangements. About one-fourth of the hygienists donated their services.

Dental assistants were employed in only a very few schools.

Dental services provided in school dental programs by dentists: Mouth examination by dentists was the dental service most frequently found in schools. Almost three-fourths (74.1%) of the cities with school dental programs reported that examinations by dentists were a part of the health program.

There was, however, no common pattern as to frequency of examinations. Twenty-five per cent reported annual examinations for all pupils. Thirty-eight per cent had annual examinations for certain grades only and ten per cent reported examinations at irregular intervals.

Annual examinations were a more common procedure in small cities than in large. One reason for this is that large cities simply couldn't muster the dental manpower to make examinations every year.

Although 76 per cent of the cities provided all or some of their school dental services in the school buildings, and only 21 percent referred pupils on the completion of their dental examination to their own dentists for a more complete examination. This condition exists, even though it admittedly is difficult if not impossible to give complete dental examinations anywhere except in a well-equipped dental office.

Some dental treatment was provided by dentists in 60 per cent of the school systems. Such treatment was usually performed for the underprivileged children only. Dental treatment was more often found to be a part of the program in the large cities. Ten per cent of the cities, however, reported providing such services as fillings and extractions for all who requested these services.

In eight per cent of the cities, dentists provided topical fluoride treatments to children of certain ages.

Dental services provided in school dental programs by dental hygienists: Dental hygienists in 13 per cent of the cities made annual dental inspections of all children, whereas in about 16 per cent they made annual inspections in certain grades only. In about half of the schools where dental hygienists made inspections, the children were referred to their own dentist for a thorough examination.

Dental hygienists provided prophylaxis in 18 per cent of the cities. This service was found principally in the larger cities. The median amount of time spent by all the dental hygienists in this activity was 40 per cent.

In 20 per cent of the cities, hygienists gave topical fluoride applications and devoted 40 per cent of their time to this preventive measure.

Educational activities of dental personnel: I recognize that it is difficult to separate dental health education from dental services. There were, however, some specific questions asked in the questionnaire about time devoted to educational activities by dentists and dental hygienists.

It was found that in 27.1 per cent of the cities, dentists served as consultants to teachers in their health instructon programs and that in 14 per cent of the cities, dentists appeared before various classes to speak on care of the teeth.

Dental hygienists served as consultants to teachers in health instruction and aided in in-service training of teachers in 18 per cent of the cities. In 20 per cent of the cities dental hygienists taught dental health in the classroom. The median amount of time spent in this activity was 15 per cent. Besides these activities dental hygienists made follow-up visits to the home in 18 per cent of the cities.

General observations on the study: This survey was not intended to provide a qualitative analysis of dental programs in schools but simply to collect information about dental personnel working in schools. From the information collected, however, it is possible to make a number of generalizations and to ask some questions.

It is apparent that the one service provided over all others is dental inspection. The purpose of dental inspection is two-fold: (1) to determine, in a general way, the dental health status of the child and (2) to motivate the child and parents toward better home care and toward seeking regular dental care. Unless these goals are achieved to a reasonable degree, the value of inspection can be seriously questioned. The motivation to seek dental care is particularly important, since many surveys throughout the country show that from 50 to 95% of all children inspected are in need of dental treatment. These findings are repeated year after year.

A report[4] of a study in Pennsylvania, where medical and dental examinations are routine every other year, stated that 77.9% of the children examined by dentists were in need of dental care.

This percentage might have been even higher had complete examinations been given in the dentist's office.

This same report stated that after a well planned follow-up program was instituted, the correction rate for medical defects found was 45.6 per cent. In regard to the correction rate for dental defects, this statement was made: ". . . it must be reported reluctantly that the improvement in the medical correction rate was not matched by the dental correction rate, where our efforts seemed to go for naught."

This would indicate that there is a great need for an educational program to convince both the child and the parents of the importance of dental health. It shows in addition that the dental examination in itself does not guarantee better dental health, no matter how often the examination is held.

This is not intended as a criticism of those schools providing rountine dental inspections but rather to point up the need for examining carefully the procedures used in developing an inspection program so that the educational potentialities of the inspection can be realized.

The questionnaire did not mention dental inspections by the school nurse or physician. Nevertheless, 106 of the schools reported that the school nurse made dental inspections and 14 cities reported dental inspections by the school physician. Since there was no question asked concerning services of nurses or physicians, I think we can assume that this situation is more common than these figures indicate.

Although all health service personnel and all teachers should be alert to dental problems of school children, dental inspections by nurses and physicians can be questioned because usually neither are equipped with the facilities or training to make such an inspection; because children and parents are often likely to accept such inspections as a complete examination, and because the time of the physician and nurse can be spent more profitably in other activities. Even school dental inspections by dentists or dental hygienists are usually only a rough screening procedure and should be followed up by a more thorough examination by the family dentist in his office.

There is a question, also as to how much of the time of the dentist and dental hygienist should be devoted to treatment even of a preventive nature, such as prophylaxis or topical fluoride applications. The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association in its report "School Health Services"[5] makes

this statement: "Provision of medical and dental treatment is not a school function. School health services identify health problems, [5]help to adjust school programs to the needs of children, and call parents' attention to children who require treatment so that they may be taken to their family physician and dentist. Those unable to afford such services are referred to the community agency designated to provide treatment to the needy." The report[6] says further in regard to functions of dentists and dental hygienists, "The functions of the (dental) consultant should include the following: to help school personnel develop a desirable, efficient and effective dental health program; to check accuracy of dental health concepts presented in the health education programs; to serve as a liaison between the schools, local dentists, health departments and other community groups. Where inspections or treatment of any type are provided, the dental consultant should supervise such activities."

A dental hygienist, where there is no school dentist, assumes many of the responsibilities and in addition, has the important role of adviser to teachers in their health instruction programs. Hygienists can assist also in in-service training of teachers as well as in making home visits to counsel parents on dental problems.

It may be well, therefore, for each school to make a study to determine the best use of its own dental personnel.

New approaches to dental health education: In order to learn if new or unusual approaches are being used in dental health education, a personal letter was written to a selected number of state dental directors requesting such information.

An analysis of the replies revealed certain elements common to many of them: cooperation among the schools, health departments and the dental profession; education of parents and their participation in the programs; utilization of health services as a tool for education; in-service education of teachers, and finally emphasis on the importance of regular dental care.

The following examples will serve to illustrate activities in dental health education.

In several states, the health department, dental society and schools cooperated in a program which included an examination of all school children to obtain baseline data on dental health, the development of a graded course of study in dental health for the school and a parent education program designed to stimulate interest in fluoridation of the public water supply. The dental

survey brought out the need for an educational program and for fluoridation of water and would serve as a baseline for measuring the effectiveness of fluoridation once it was put into operation.

In another state plans are underway to develop an x-ray survey program comparable to that of the tuberculosis survey. The x-ray surveys will be carried on as a cooperative venture of the health department, local schools and local dental society. An educational program will precede and follow the x-raying and the schools will develop a follow-up program to get pupils to the dentist for necessary treatment.

In-service training programs in dental health for teachers are being developed in many schools. Again the dental society, health department and the schools are planning and working together.

In several schools in one state, the high school science classes are making Snyder tests for dental caries susceptibility. Interest in the program has spread to all parts of the schools resulting in increased activities in preventive dental health.

Toothbrushing drills are being conducted in a number of schools. In some, the drills are a part of a dental research program. In all of the schools, however, toothbrushing is a part of the health instruction program.

The Parent-Teacher Association in one state has recognized the importance of education of the parents in dental health by establishing a study course in dental health for all local units of the association. The study courses are developed with the assistance of the health department and the dental society.

These are but a few examples of how schools, working with community agencies, are making dental health education more meaningful and interesting to pupils and parents. As such teaching devices become more widely used we can expect the dental health education of children and adults to improve in proportion.

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